	Application No.	Applicant(s)	
Notice of Allowability	10/826,860	ITO ET AL.	
	Examiner	Art Unit	
	Steven Kau	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *4/18/2003*.

2. ☒ The allowed claim(s) is/are *1-11*.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☒ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
    Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)
1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

KING Y. POON
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

Examiner's Amendment

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview

with Mr. Peter B. Martine on September 27, 2007.

The application has been amended as follows:

- Claim 5, "<u>A program product</u> which enables the computer to realize the

  capability of determining lattice points ...." has been amended to "<u>A</u>

  <u>computer readable medium containing a program product</u> which enables

  the computer to realize the capability of determining lattice points ...."

  (Emphasis added).

- Claim 8, "<u>A print controlling program product</u> which enables the computer

  to realize the capability of generating the printing data....." has been

  amended to "<u>A computer readable medium containing a print controlling</u>

  <u>program product</u> which enables the computer to realize the capability of

  generating the printing data....." (Emphasis added).

- Claim 11, "<u>A color converting program product</u> which references

  correspondence defining data....." has been amended to "<u>A computer</u>

readable medium containing a color converting program product which

references correspondence defining data....." (Emphasis added).

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance:

The primary reasons for allowance for claim 1-11 are the inclusion of the

limitation of an apparatus and a method for determining lattice points as references for

defining corresponding data between amount of ink used by the printing apparatus, and

the color component value is a color system. It is these limitations either alone or

combined as claimed that were taught, found, or suggested by prior part.

With respect to claim 1, is drawn to a method for determining lattice points to be

referenced to prepare correspondence defining data that defines correspondence

between the amount of each ink used by the printing apparatus and the color

component value in a color system. Claim1 claims "referencing the original

correspondence defining data which previously prescribes correspondence between the

lattice points in the low-dimensional color space prescribed by less color components

than the number of inks and the lattice points for ink amount in the ink amount space,

thereby acquiring correspondence between the lattice points in the low-dimensional

color space and the lattice points in the device-independent color space; prescribing a

smoothness evaluation function which evaluates the smoothness of arrangement of

lattice points in the device-independent color space by using as a variable the lattice

point position information in the low-dimensional color space, said function having a

function form differing depending on each region in the color gamut to which the lattice

point to be evaluated belongs and also containing a constraint condition that the closer

the lattice point is to the boundary of the region of the color gamut, the more the

evaluated value decreases as the result of its movement; optimizing the arrangement of

lattice points in the device-independent color-space by improving the rating of the

smoothness evaluation function, with the lattice point position information in the low-

dimensional color space varied; and referencing the original correspondence defining

data, thereby associating the amount of each ink corresponding to the lattice points in

the low-dimensional color space in the optimized state with the lattice points in the low-

dimensional color space prescribed by the original correspondence defining data".

The closest prior arts in the record are Kanamori et al (US 5,504,821) and Inoue

et al (US 6,128,407) and Nagael et al (US 6,335,734). Either by Kanamori et al, Inoue et

al or Nagael et al individually, or combined Kanamori with Inoue and Nagael do not

teach or suggest the above claimed limitation.

Claims 2 and 3 are dependent claims to Claim1. Therefore claims 1-3 are

allowable.

With respect to claim 4, is drawn to an apparatus for determining lattice points to

be referenced to prepare correspondence defining data that defines correspondence

between the amount of each ink used by the printing apparatus and the color

component value in a color system. Claims 4 claims "a unit to record the original

correspondence defining data which previously prescribes correspondence between the

lattice points in the low-dimensional color space prescribed by less color components than the number of inks and the lattice points for ink amount in the ink amount space; a unit to acquire correspondence between the lattice points in the low-dimensional color space and the lattice points in the device-independent color space by referencing the original correspondence defining data; a unit to calculate a smoothness evaluation function which evaluates the smoothness of arrangement of lattice points in the device-independent color space by using as a variable the lattice point position information in the low-dimensional color space, said function having a function form differing depending on each region in the color gamut to which the lattice point to be evaluated belongs and also containing a constraint condition that the closer the lattice point is to the boundary of the region of the color gamut, the more the evaluated value decreases as the result of its movement; a unit to optimize the arrangement of lattice points in the device-independent color-space by improving the rating of the smoothness evaluation function, with the lattice point position information in the low-dimensional color space varied; and a unit to reference the original correspondence defining data, thereby associating the amount of each ink corresponding to the lattice points in the low-dimensional color space in the optimized state with the lattice points in the low-dimensional color space prescribed by the original correspondence defining data".

With respect to claim 5, is drawn to a computer readable medium containing a program product which enable the computer for determining lattice points to be referenced to prepare correspondence defining data that defines correspondence

between the amount of each ink used by the printing apparatus and the color

component value in a color system. Claim 5 claims similar limitations as claims 1 and 4.

The closest prior arts in the record are Kanamori et al (US 5,504,821) and Inoue

et al (US 6,128,407) and Nagael et al (US 6,335,734). Either by Kanamori et al, Inoue et

al or Nagael et al individually, or combined Kanamori with Inoue and Nagael do not

teach or suggest the above claimed limitation. Therefore, claims 4 and 5 are allowable.

With respect to claim 6, is drawn to a print controlling apparatus for generating

the printing data which permit printing by referencing correspondence defining data that

defines correspondence between the amount of each ink used by the printing apparatus

and the color component value in a color system and converting the color component

value in the color system into the amount of ink. Claim 6 claims "the correspondence

defining data is one which is prepared by referencing the original correspondence

defining data which previously prescribes correspondence between the lattice points in

the low-dimensional color space prescribed by less color components than the number

of inks and the lattice points for ink amount in the ink amount space, thereby acquiring

correspondence between the lattice points in the low-dimensional color space and the

lattice points in the device-independent color space, prescribing a smoothness

evaluation function which evaluates the smoothness of arrangement of lattice points in

the device-independent color space by using as a variable the lattice point position

information in the low-dimensional color space, said function having a function form

differing depending on each region in the color gamut to which the lattice point to be

evaluated belongs and also containing a constraint condition that the closer the lattice

point is to the boundary of the region of the color gamut, the more the evaluated value

decreases as the result of its movement, optimizing the arrangement of lattice points in

the device-independent color-space by improving the rating of the smoothness

evaluation function, with the lattice point position information in the low-dimensional

color space varied, referencing the original correspondence defining data, thereby

associating the amount of each ink corresponding to the lattice points in the low-

dimensional color space in the optimized state with the lattice points in the low-

dimensional color space prescribed by the original correspondence defining data to

establish the lattice points for preparing the correspondence defining data, and

associating the amount of ink with the color component value in the other color system

by means of the colorimetric value measured by using a prescribed colorimetry for the

result of printing with the amount of ink prescribed by the lattice points to be referenced

to prepare the correspondence defining data".

With respect to claim 7, is drawn to a method for generating the printing data

which permit printing by referencing correspondence defining data that defines

correspondence between the amount of each ink used by the printing apparatus and the

color component value in a color system and converting the color component value in

the color system into the amount of ink, and the claim limitations are similar to claim 6.

With respect to claim 8, is drawn to a computer readable medium containing a

print controlling program product which enables the computer to realize the capability of

generating the printing data which permit printing by referencing correspondence

defining data that defines correspondence between the amount of each ink used by the

printing apparatus and the color component value in a color system and converting the

color component value in the color system into the amount of ink, and the claim

limitations are similar to claim 6.

The closest prior arts in the record are Kanamori et al (US 5,504,821) and Inoue

et al (US 6,128,407) and Nagael et al (US 6,335,734). Either by Kanamori et al, Inoue et

al or Nagael et al individually, or combined Kanamori with Inoue and Nagael do not

teach or suggest the above claimed limitation. Therefore, claims 6, 7 and 8 are

allowable.

With respect to claim 9, is drawn to a color converting apparatus which

references correspondence defining data that defines correspondence between the

amount of each ink used by the printing apparatus and the color component value in a

color system, thereby converting the color component value in the color system into the

amount of ink. Claim 9 claims "the correspondence defining data is one which is

prepared by referencing the original correspondence defining data which previously

prescribes correspondence between the lattice points in the low-dimensional color

space prescribed by less color components than the number of inks and the lattice

points for ink amount in the ink amount space, thereby acquiring correspondence

between the lattice points in the low-dimensional color space and the lattice points in

the device-independent color space, prescribing a smoothness evaluation function

which evaluates the smoothness of arrangement of lattice points in the device-

independent color space by using as a variable the lattice point position information in

the low-dimensional color space, said function having a function form differing

depending on each region in the color gamut to which the lattice point to be evaluated belongs and also containing a constraint condition that the closer the lattice point is to the boundary of the region of the color gamut, the more the evaluated value decreases as the result of its movement, optimizing the arrangement of lattice points in the device-independent color-space by improving the rating of the smoothness evaluation function, with the lattice point position information in the low-dimensional color space varied, referencing the original correspondence defining data, thereby associating the amount of each ink corresponding to the lattice points in the low-dimensional color space in the optimized state with the lattice points in the low-dimensional color space prescribed by the original correspondence defining data to establish the lattice points for preparing the correspondence defining data, and associating the amount of ink with the color component value in the other color system by means of the colorimetric value measured by using a prescribed colorimetry for the result of printing with the amount of ink prescribed by the lattice points to be referenced to prepare the correspondence defining data".

With respect to claim 10, is drawn to a color converting method which references correspondence defining data that defines correspondence between the amount of each ink used by the printing apparatus and the color component value in a color system, thereby converting the color component value in the color system into the amount of ink.

With respect to claim 11, is drawn to a computer readable medium containing a color converting program product which references correspondence defining data that defines correspondence between the amount of each ink used by the printing apparatus

and the color component value in a color system, thereby converting the color

component value in the color system into the amount of ink.

Both claims 10 and 11 claim similar limitations as claim 9.

The closest prior arts in the record are Kanamori et al (US 5,504,821) and Inoue

et al (US 6,128,407) and Nagael et al (US 6,335,734). Either by Kanamori et al, Inoue et

al or Nagael et al individually, or combined Kanamori with Inoue and Nagael do not

teach or suggest the above claimed limitation. Therefore, claims 9, 10 and 11 are

allowable.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Steven Kau whose telephone number is 571-270-1120

and fax number is 571-270-2120. The examiner can normally be reached on M-F,

8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, King Poon can be reached on 571-272-7440. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

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Patent Examiner
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September 28, 2007

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